STORMWATER MANAGEMENT

Note: Projects with $0 total funding are active capital projects funded in prior CIP's that do not require additional resources.

	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2020 - FY 2029
Stormwater Management											
Stormwater Management											
Four Mile Run Channel Maintenance	600,000	0	0	600,000	0	0	0	0	600,000	0	1,800,000
Green Infrastructure	350,000	350,000	350,000	350,000	350,000	350,000	350,000	350,000	350,000	350,000	3,500,000
MS4-TMDL Compliance Water Quality Imprv.	1,255,000	3,000,000	3,500,000	3,500,000	7,000,000	7,000,000	7,000,000	9,000,000	5,000,000	3,000,000	49,255,000
NPDES / MS4 Permit	160,000	165,000	170,000	175,000	180,000	185,000	190,000	195,000	195,000	195,000	1,810,000
Storm Sewer Capacity Assessment	475,000	475,000	0	0	0	0	0	500,000	0	0	1,450,000
Storm Sewer System Spot Improvements	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000	3,000,000
Stormwater BMP Maintenance CFMP	135,000	140,000	150,000	155,000	1,110,000	1,105,000	160,000	170,000	175,000	176,000	3,476,000
Strawberry Run Stream Restoration	550,000	0	0	0	0	0	0	0	0	0	550,000
Stream & Channel Maintenance	450,000	450,000	450,000	450,000	450,000	450,000	450,000	450,000	450,000	450,000	4,500,000
Taylor Run Stream Restoration	1,695,000	0	0	0	0	0	0	0	0	0	1,695,000
Stormwater Management Total	5,970,000	4,880,000	4,920,000	5,530,000	9,390,000	9,390,000	8,450,000	10,965,000	7,070,000	4,471,000	71,036,000
Grand Total	**5,970,000**	**4,880,000**	**4,920,000**	**5,530,000**	**9,390,000**	**9,390,000**	**8,450,000**	**10,965,000**	**7,070,000**	**4,471,000**	**71,036,000**

Stormwater Management Utility Ten-Year Plan
Approved FY 2020 – FY 2029 Capital, Operating and Debt Service

The Stormwater Management Utility plan presented on the following pages represents the approved operating budget, debt service and capital program for FY 2020 and a preliminary estimate for FY 2021 – FY 2029. As the Stormwater Utility project enters Phase II, staff will continue to refine cost estimates and the structure and timing of changes to the Stormwater Utility Rate. Staff will reevaluate the program and Stormwater Utility rate every year and present changes to City Council as part of each year's budget development cycle.

Stormwater Rate	FY 2019	FY 2020 Approved	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	
Stormwater Utility Rate per ERU	$140.00	$140.00	$140.00	$146.30	$152.88	$168.94	$202.72	$211.85	$221.38	$231.34	$241.75	
Proposed Rate Increase	**0.0%**	**0.0%**	**4.5%**	**4.5%**	**10.5%**	**20.0%**	**4.5%**	**4.5%**	**4.5%**	**4.5%**	**4.5%**	
New Stormwater Utility Rate	$140.00	$140.00	$146.30	$152.88	$168.94	$202.72	$211.85	$221.38	$231.34	$241.75	$252.63	

Revenues	FY 2019	FY 2020 Approved	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	Total FY 20-29
Billing Units	60,175	60,279	60,520	60,762	61,005	61,249	61,494	61,740	61,987	62,235	62,484	
Annual Revenue Generation	8,424,500	8,439,060	8,854,093	9,289,537	10,305,998	12,416,667	13,027,319	13,668,002	14,340,194	15,045,445	15,785,380	**121,298,282**
Other Revenue Sources	21,017	21,017	21,017	21,017	21,017	21,017	21,017	21,017	21,017	21,017	21,017	**210,170**
Revenue Stream Reductions	(312,366)	(239,064)	(331,389)	(341,331)	(351,571)	(362,118)	(372,981)	(384,171)	(395,696)	(407,567)	(419,794)	**(3,688,354)**
New Debt Issuance	3,683,000	3,987,993	3,550,000	3,275,000	3,275,000	4,775,000	4,715,000	4,715,000	8,775,000	4,775,000	2,775,000	**44,680,000**
Use of Fund Balance	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Revenues	**11,816,151**	**12,209,006**	**12,093,721**	**12,244,224**	**13,250,445**	**16,850,566**	**17,390,354**	**18,019,848**	**22,740,516**	**19,433,895**	**18,161,603**	**162,500,098**

Expenditures	FY 2019	FY 2020 Approved	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	Total FY 20-29
All Operating	5,355,036	5,108,961	5,250,796	5,438,190	5,669,398	6,006,212	6,209,181	6,419,092	6,636,206	6,860,894	7,093,339	**60,704,329**
All Capital Projects	5,797,530	6,280,697	5,399,500	5,473,100	6,118,400	10,015,400	10,054,200	9,155,000	11,712,700	7,862,500	5,310,500	**77,381,997**
All Debt Service	663,585	819,348	1,231,452	1,585,112	1,843,201	2,327,511	2,744,048	3,163,809	3,950,458	4,334,381	4,542,222	**26,635,399**
Total Expenditures	**11,816,151**	**12,209,006**	**11,881,748**	**12,496,402**	**13,630,999**	**18,349,123**	**19,007,429**	**18,737,901**	**22,299,363**	**19,057,775**	**16,946,061**	**164,721,726**

Operating Costs	FY 2019	FY 2020 Approved	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	Total FY 20-29
TES Personnel	3,124,599	3,145,624	3,239,993	3,337,193	3,437,308	3,540,428	3,646,640	3,756,040	3,868,721	3,984,782	4,104,326	**35,946,995**
Main Operating	506,262	587,695	605,326	623,486	642,190	661,456	681,300	701,739	722,791	744,474	766,809	**6,675,258**
BMP's Operation	260,008	263,008	270,898	279,025	287,396	296,018	304,898	314,045	323,467	333,171	343,166	**3,015,092**
Oronoco Outfall Maintenance	100,000	100,000	103,000	106,090	109,273	112,551	115,927	119,405	122,987	126,677	130,477	**1,146,388**
Additional operating impact from capital	178,000	194,480	200,314	207,100	213,500	220,900	228,400	235,900	243,400	251,000	258,600	**2,253,594**
Indirect Costs	775,054	778,154	801,499	854,637	948,152	1,142,333	1,198,513	1,257,456	1,319,298	1,384,181	1,452,255	**11,146,364**
Contingent Cash Funding	411,113	40,000	29,766	30,659	31,579	32,526	33,502	34,507	35,542	36,608	37,707	**520,639**
Subtotal, Operating Costs	*5,355,036*	*5,108,961*	*5,250,796*	*5,438,190*	*5,669,398*	*6,006,212*	*6,209,181*	*6,419,092*	*6,636,206*	*6,860,894*	*7,093,339*	*60,704,329*

Stormwater Management Utility Ten-Year Plan
Approved FY 2020 – FY 2029 Capital, Operating and Debt Service
(continued)

Capital Projects	FY 2019	FY 2020 Approved	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	Total FY 20-29
Cameron Station Pond Retrofit	0	0	0	0	0	0	0	0	0		0	**0**
City Facilities Stormwater Best Management Practices (BMPs)	1,133,000	0	0	0	0	0	0	0	0		0	**0**
Four Mile Run Channel Maintenance	0	600,000	0	0	600,000	0	0	0	0	600,000	0	**1,800,000**
Green Infrastructure (1)	0	0	175,000	175,000	175,000	175,000	175,000	175,000	175,000	175,000	175,000	**1,575,000**
Lake Cook Stormwater Management	0	0	0	0	0	0	0	0	0	0	0	**0**
Lucky Run Stream Restoration	585,000	0	0	0	0	0	0	0	0	0	0	**0**
MS4-TMDL Compliance Water Quality Improvements	500,000	1,255,000	3,000,000	3,500,000	3,500,000	7,000,000	7,000,000	7,000,000	9,000,000	5,000,000	3,000,000	**49,255,000**
NPDES / MS4 Permit	155,000	160,000	165,000	170,000	175,000	180,000	185,000	190,000	195,000	195,000	195,000	**1,810,000**
Storm Sewer Capacity Assessment & Improvements	0	475,000	475,000	0	0	0	0	0	500,000	0	0	**1,450,000**
Storm Sewer System Spot Improvements	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000	**3,000,000**
Stormwater Utility Implementation	155,000	0	0	0	0	0	0	0	0		0	**0**
Stream and Channel Maintenance	365,000	450,000	450,000	450,000	450,000	450,000	450,000	450,000	450,000	450,000	450,000	**4,500,000**
Landmark Stormwater Infrastructure Study	100,000	0	0	0	0	0	0	0	0	0	0	**0**
Phosphorus Exchange Bank for City Projects		0	0	0	0	0	0	0	0	0	0	**0**
Stormwater BMP Maintenance CFMP		135,000	140,000	150,000	155,000	1,110,000	1,105,000	160,000	170,000	175,000	176,000	**3,476,000**
Strawberry Run Stream Restoration		550,000	0	0	0	0	0	0	0	0	0	**550,000**
Taylor Run Stream Restoration		1,695,000	0	0	0	0	0	0	0	0	0	**1,695,000**
DPI Personnel	603,010	609,373	639,800	671,800	705,400	740,700	777,700	816,600	857,400	900,300	945,300	**7,664,373**
Capitalized Sustainability Coordinator	51,520	51,324	54,700	56,300	58,000	59,700	61,500	63,400	65,300	67,200	69,200	**606,624**
Subtotal, Capital Projects	*5,797,530*	*6,280,697*	*5,399,500*	*5,473,100*	*6,118,400*	*10,015,400*	*10,054,200*	*9,155,000*	*11,712,700*	*7,862,500*	*5,310,500*	*77,381,997*

Debt Service	FY 2019	FY 2020 Approved	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	Total FY 20-29
Total Debt Service Payments	*$663,585*	*$819,348*	*$1,231,452*	*$1,585,112*	*$1,843,201*	*$2,327,511*	*$2,744,048*	*$3,163,809*	*$3,950,458*	*$4,334,381*	*$4,542,222*	*$26,635,399*

CAMERON STATION POND RETROFIT

DOCUMENT SUBSECTION:	Stormwater Management	PROJECT LOCATION:	Ben Brenman Park, 4800 Brenman Park Dr, Alexandria, VA 22304
MANAGING DEPARTMENT:	Department of Transportation and Environmental Services	REPORTING AREA:	Landmark/Van Dorn
		PROJECT CATEGORY:	3
PRIMARY STRATEGIC THEME:	Theme 8: Environmental Sustainability	ESTIMATE USEFUL LIFE:	30+ Years

Cameron Station Pond Retrofit

	A (B + M) Total Budget & Financing	B Through 2019	C FY 2020	D FY 2021	E FY 2022	F FY 2023	G FY 2024	H FY 2025	I FY 2026	J FY 2027	K FY 2028	L FY 2029	M (C:L) Total FY 2020 - FY 2029
Expenditure Budget	4,550,000	4,550,000	0	0	0	0	0	0	0	0	0	0	0
Financing Plan													
GO Bonds (Stormwater)	1,750,000	1,750,000	0	0	0	0	0	0	0	0	0	0	0
Private Capital Contributions	1,050,000	1,050,000	0	0	0	0	0	0	0	0	0	0	0
State/Federal Grants	1,750,000	1,750,000	0	0	0	0	0	0	0	0	0	0	0
Financing Plan Total	4,550,000	4,550,000	0	0	0	0	0	0	0	0	0	0	0
Additional Operating Impact	1,413,300	0	0	139,100	143,300	147,600	152,000	156,600	161,300	166,100	171,100	176,200	1,413,300

CHANGES FROM PRIOR YEAR CIP

No changes from previous CIP for FY 2020 – FY 2029. Prior year funding was increased by $800,00 from a transfer from the Environmental Restoration project.

PROJECT DESCRIPTION & JUSTIFICATION

Virginia Department of Environmental Quality (DEQ) issued the City's current Municipal Separate Storm Sewer System (MS4) Permit on July 1, 2013 that mandates City-specific stormwater nutrient and sediment reduction targets for the Chesapeake Bay (Bay) Total Maximum Daily Load (TMDL) enforced through three 5-year permit cycles. Accordingly, the current MS4 permit requires the City to implement practices sufficient to achieve 5% of the reduction targets during the first 5-year permit (2013-2018), while successive MS4 permits will require implementaiton of practices to achieve an additional 35% or 40% of total reduction targets during the second 5-year permit (2018-2023) by 2023, and the remaining 60% or 100% of the total reductions on or before the end of the third 5-year permit (2023-2028) by 2028. The City's 2018 – 2023 MS4 General Permit mandating a total of 40% Bay reductions by June 30, 2023 is scheduled to be in effect on or after July 1, 2018 and remain effective through June 30, 2023.

Retrofits to existing large regional stormwater facilities will provide additional pollutant removal either by enhancing the treatment efficiency and/or increasing the amount of area draining to the facility and is one of the most cost effective strategies to meet the identified pollution reduction requirements.

In order to comply with these targets, the City has been discussing these strategies and other options available to the City through the Water Quality Steering Committee and Water Quality Workgroup. The City also completed the Chesapeake Bay TMDL Compliance Analysis and Options report that looked into options and alternatives for treating stormwater and provided corresponding costs. The City's Phase 1 Chesapeake Bay TMDL Action Plan for acheiving 5% of the reductions was submitted to DEQ on October 1, 2015 and approved by DEQ on January 12, 2016. The City's draft Bay Action Plan for achieving a total 40% of the reductions was submitted in June 2018, with the final due one year after the effective date of the 2018 – 2023 MS4 General Permit (Octorber 31, 2019) . The City's approved Bay TMDL Action Plan and the draft Phase 2 Action Plan identify the retrofit of large regional stormwater facilities as a major strategy towards meeting pollution reduction goals.

In FY 2015, City staff pursued and received $1.75 million in a grant from the state through the Stormwater Local Assistance Fund (SLAF) by leveraging an equivalent amount of City funding for this project. This reduced the City funded contribution to this project by half of the original budgeted amount. While, the Cameron Station Pond Retrofit is a cost effective strategy to meet the City's pollution reduction requirements this project also offers an opportunity to enhance the recreational elements of this facility, making it more of an amenity to park-goers than it is currently.

EXTERNAL OR INTERNAL ADOPTED PLAN OR RECOMMENDATION

City of Alexandria Municipal Separate Storm Sewer System (MS4) General Permit, Program Plan, and Year 5 Annual Report; City's Chesapeake Bay TMDL Action Plan; T&ES Strategic Plan; Eco-City Charter; Eco-City Action Plan

ADDITIONAL OPERATING IMPACTS

Average operational costs based on published studies of such facilities with enhanced amenities and visibility.

CITY FACILITIES STORMWATER BEST MANAGEMENT PRACTICES (BMPS)

DOCUMENT SUBSECTION:	Stormwater Management	PROJECT LOCATION:	Citywide
MANAGING DEPARTMENT:	Department of Transportation and Environmental Services	REPORTING AREA:	Citywide
		PROJECT CATEGORY:	3
PRIMARY STRATEGIC THEME:	Theme 8: Environmental Sustainability	ESTIMATE USEFUL LIFE:	21 - 25 Years

City Facilities Stormwater Best Management Practices (BMPs)

	A (B + M) Total Budget & Financing	B Through 2019	C FY 2020	D FY 2021	E FY 2022	F FY 2023	G FY 2024	H FY 2025	I FY 2026	J FY 2027	K FY 2028	L FY 2029	M (C:L) Total FY 2020 - FY 2029
Expenditure Budget	1,633,000	1,633,000	0	0	0	0	0	0	0	0	0	0	0
Financing Plan													
Cash Capital	125,000	125,000	0	0	0	0	0	0	0	0	0	0	0
GO Bonds (Stormwater)	1,133,000	1,133,000	0	0	0	0	0	0	0	0	0	0	0
Stormwater Utility	375,000	375,000	0	0	0	0	0	0	0	0	0	0	0
Financing Plan Total	1,633,000	1,633,000	0	0	0	0	0	0	0	0	0	0	0
Additional Operating Impact	270,000	0	0	26,600	27,400	28,200	29,000	29,900	30,800	31,700	32,700	33,700	270,000

CHANGES FROM PRIOR YEAR CIP

No changes from previous CIP.

PROJECT DESCRIPTION & JUSTIFICATION

The Virginia Department of Environmental Quality (DEQ) issued the City's current Municipal Separate Storm Sewer System (MS4) Permit on November 1, 2018 that mandates City-specific stormwater nutrient and sediment reduction targets for the Chesapeake Bay (Bay) Total Maximum Daily Load (TMDL) enforced through three 5-year MS4 permit cycles. Accordingly, the previous 2013-2018 permit required the City to implement practices sufficient to achieve 5% of the reduction targets during the first 5-year permit (2013-2018), while the current MS4 permit requires implementation of practices to achieve an additional 35% or 40% of the total reduction targets during the second 5-year permit (2018-2023) by 2023, and the remaining 60% or 100% of the reduction on or before the end of the third 5-year permit cycle (2023-2028) no later than 2028. The City's 2018 – 2023 MS4 General Permit mandating the total 40% Bay reductions by June 30, 2023 was effective November 1, 2018 and remains in effect through October 31, 2023.

One of the City's strategies to meet the identified pollution reduction requirements is retrofitting existing City properties that currently do not provide stormwater treatment with stormwater best management practices (BMPs) or to install additional stormwater BMPs for untreated areas to provide additional pollutant removal. The City has been discussing these and other options available to comply with these targets through the Water Quality Steering Committee and a Water Quality Workgroup. The City has also completed the Chesapeake Bay TMDL Compliance Analysis and Options (Analysis) report that looked into options and alternatives for treating stormwater and corresponding costs. The City's Chesapeake Bay TMDL Action Plan for acheiving 5% of the reductions was submitted to DEQ on October 1, 2015 and approved by DEQ on January 12, 2016. The City's draft Bay Action Plan for achieving a total 40% of the reductions was submitted June 2018, with the final due October 31, 2019, which is one year after the effective date of the 2018 – 2023 MS4 General Permit. The City's DEQ-approved Chesapeake Bay TMDL Action Plan identifies BMP retrofits on City properties as a strategy towards meeting mandated pollutant reduction goals.

(continued on next page)

EXTERNAL OR INTERNAL ADOPTED PLAN OR RECOMMENDATION

City of Alexandria Municipal Separate Storm Sewer System (MS4) General Permit, Program Plan and Year 5 Annual Report; Cheapeake Bay TMDL Action Plan; T&ES Strategic Plan; Eco-City Charter and Action Plan

ADDITIONAL OPERATING IMPACTS

Average operational costs based on published studies of such facilities with enhanced amenities and visibility.

City Facilities Stormwater Best Management Practices (continued)

Working closely with the General Services, Recreation, Parks and Cultural Activities, and Project Implementation departments, the following locations, among others, have been identified as potential locations for stormwater retrofits:

- T&ES/Recreation operations at 2900 Business Center Drive,
- City Fuel Island on Wheeler Avenue,
- King Street Gardens;
- ACPS Mount Vernon Elementary School and Recreation Center, and
- City Traffic Control Shop on Colvin Street.

The City is working on a Request for Qualification (RFQU) to further analyze City-owned properties to determine the best approach for retrofitting these properties with stormwater facility best management practices (BMPs). The RFQU scope include the prioritization of at least 16 potential locations in addition to the above list and the development of conceptual design of those projects, with the option to complete the design. Once completed, these retrofits are expected to treat stormwater from a total of approximately 4-8 acres of impervious surface. These sites have been selected because of the facilities' operational stormwater impacts and their relatively high percentage of impervious acreage.

FOUR MILE RUN CHANNEL MAINTENANCE

DOCUMENT SUBSECTION:	Stormwater Management	PROJECT LOCATION:	Four Mile Run Stream/Channel
MANAGING DEPARTMENT:	Department of Transportation and Environmental Services	REPORTING AREA:	Potomac West
		PROJECT CATEGORY:	2
PRIMARY STRATEGIC THEME:	Theme 8: Environmental Sustainability	ESTIMATE USEFUL LIFE:	6 - 10 Years

Four Mile Run Channel Maintenance

	A (B + M) Total Budget & Financing	B Through 2019	C FY 2020	D FY 2021	E FY 2022	F FY 2023	G FY 2024	H FY 2025	I FY 2026	J FY 2027	K FY 2028	L FY 2029	M (C:L) Total FY 2020 - FY 2029
Expenditure Budget	4,493,000	2,693,000	600,000	0	0	600,000	0	0	0	0	600,000	0	1,800,000
Financing Plan													
Cash Capital	583,000	583,000	0	0	0	0	0	0	0	0	0	0	0
GO Bonds	600,000	600,000	0	0	0	0	0	0	0	0	0	0	0
GO Bonds (Stormwater)	1,210,000	1,210,000	0	0	0	0	0	0	0	0	0	0	0
Stormwater Utility	2,100,000	300,000	600,000	0	0	600,000	0	0	0	0	600,000	0	1,800,000
Financing Plan Total	4,493,000	2,693,000	600,000	0	0	600,000	0	0	0	0	600,000	0	1,800,000
Additional Operating Impact	0	0	0	0	0	0	0	0	0	0	0	0	0

CHANGES FROM PRIOR YEAR CIP

Funding in the amount of $600,000 added in FY 2020.

PROJECT DESCRIPTION & JUSTIFICATION

This project reflects the City's share of the costs to maintain the federally funded stormwater flood control channel and system of flood walls and levees. The project was constructed as a federal flood control project built by the U.S Army Corps of Engineers (USACE) in the late 1970's which by mutual agreement requires the City to provide regular upgrades to its capital infrastructure. The USACE annually inspects Four Mile Run and dictates the extent of the channel maintenance activities that are to be completed. The City has hired a consultant to perform a detailed inspection of the flood control system, and to develop recommendations for corrections. Staff is working with USACE to determine exactly what improvements the City needs to do to bring the rating up to the upgraded post-Hurricane Katrina standards that the USACE now considers acceptable. The City is is currently developing revised plans for USACE to review that includes maintenance repairs to the flood walls, embankments, and gabions.

To date, $2.7 million in City funding has been applied to the project. Funding is programmed in the out-years of the CIP to address future capital infrastructure requirements. As Four Mile Run maintenance is a shared responsibility with Arlington County, it will be necessary for the County and the City to engage in a joint decision-making process concerning some elements of Four Mile Run maintenance activities. Discussions with Arlington County are in process for a sediment removal project. Levee/flood wall and appurtant structure maintenance remains the responsibility of the jurisdiction where each levee/wall is located.

Routine maintenance of structures, removal of accumumated sediment, and recent vegetation removal from the levee as requested by USACE uncovered additional maintenance concerns that need to be addressed. This project of routine maintenance, including removal of significant accumulated sediment, is necessary to get this flood control channel back into conditions considered acceptable by the federal government. Achieving federal acceptance provides that our communities – along with Arlington – may be eligible for federal assistance in repairing any damage to the channels that storms may cause. The regular maintenance to the flood control system ensures that the flood control project will perform as predicted and protects citizens and property from flooding, and provides eligibility for federal assistance in repairing any damage to the channels that storms may cause.

EXTERNAL OR INTERNAL ADOPTED PLAN OR RECOMMENDATION

Eco-City Charter and Action Plan; MS4 permit

ADDITIONAL OPERATING IMPACTS

No additional operating impacts identified at this time.

GREEN INFRASTRUCTURE

DOCUMENT SUBSECTION:	Stormwater Management	PROJECT LOCATION:	Citywide
MANAGING DEPARTMENT:	Department of Transportation and Environmental Services	REPORTING AREA:	Citywide
		PROJECT CATEGORY:	3
PRIMARY STRATEGIC THEME:	Theme 8: Environmental Sustainability	ESTIMATE USEFUL LIFE:	Varies

Green Infrastructure

	A (B + M) Total Budget & Financing	B Through 2019	C FY 2020	D FY 2021	E FY 2022	F FY 2023	G FY 2024	H FY 2025	I FY 2026	J FY 2027	K FY 2028	L FY 2029	M (C:L) Total FY 2020 - FY 2029
Expenditure Budget	5,000,000	1,500,000	350,000	350,000	350,000	350,000	350,000	350,000	350,000	350,000	350,000	350,000	3,500,000
Financing Plan													
GO Bonds (Stormwater)	1,195,000	1,195,000	0	0	0	0	0	0	0	0	0	0	0
Sanitary Sewer Fund	1,925,000	0	350,000	175,000	175,000	175,000	175,000	175,000	175,000	175,000	175,000	175,000	1,925,000
Stormwater Utility	1,880,000	305,000	0	175,000	175,000	175,000	175,000	175,000	175,000	175,000	175,000	175,000	1,575,000
Financing Plan Total	5,000,000	1,500,000	350,000	350,000	350,000	350,000	350,000	350,000	350,000	350,000	350,000	350,000	3,500,000
Additional Operating Impact	23,400	0	0	2,200	2,300	2,400	2,500	2,600	2,700	2,800	2,900	3,000	23,400

CHANGES FROM PRIOR YEAR CIP

No changes from previous CIP.

PROJECT DESCRIPTION & JUSTIFICATION

This project receives funding from both the sanitary sewer and stormwater management special revenue funds for study, design, and construction of green infrastructure projects. This project is consistent with the objectives of the citywide apporach to implement Green Infrastructure for the combined sewer system (CSS), and the water pollution reduction goals in the City's Chesapeake Bay Total Maximum Daily Load (TMDL) Action Plan for the municipal separate storm sewer system (MS4) general permit. Projects completed will implement green infrastructure in the City to help the City address regulatory requirements.

Completion of these projects will provide the following benefits: increase stormwater infiltration, reduce stormwater runoff, provide stormwater treatment (nutrients and sediment), and decrease the volume of discharges.

Prior year funding will be used for the design and construction of green infrastructure demonstration project(s) in the combined sewer area, with additional other projects to be identified through work related to the City's Chesapeake Bay TMDL Action Plan as part of the City-wide approach to the implementation of Green Infrastructure. A Green Infrastructure Program Policy Study commenced in FY 2019 that will focus on a citywide approach to implementation. Funding for projects identified through these efforts will be used for future years and supplemented, as needed, thorugh the MS4-TMDL Compliance project. Construction of the current green infrastructure demonstration project is scheduled for completion in FY 2020/FY2021. Consistent with the City's planning documents that include green infrastructure as a strategy, funding has been added to the FY2020 – FY 2028 budget to continue with the implementation of green infrastructure.

EXTERNAL OR INTERNAL ADOPTED PLAN OR RECOMMENDATION

T&ES Strategic Plan 2012-2015; City of Alexandria Municipal Separate Storm Sewer System (MS4) General Permit, Program Plan, and PY5 Annual Report; Eco-City Charter City's Combined Sewer System Permit; City's Chesapeake Bay TMDL Action Plan; Old Town North Small Area Plan; Eisenhower West Small Area Plan; Landmark Van Dorn Small Area Plan

ADDITIONAL OPERATING IMPACTS

There are operating impacts associated with the inspection and maintenance of green infrastructure. Additional operating impacts will be identified as projects are installed. Costs are based on current costs for green infrastructure at City facilities.

LUCKY RUN STREAM RESTORATION

DOCUMENT SUBSECTION:	Stormwater Management	PROJECT LOCATION:	2601 Gadsby Place
MANAGING DEPARTMENT:	Department of Transportation and Environmental Services	REPORTING AREA:	Beauregard
		PROJECT CATEGORY:	3
PRIMARY STRATEGIC THEME:	Theme 8: Environmental Sustainability	ESTIMATE USEFUL LIFE:	21-25

Lucky Run Stream Restoration

	A (B + M) Total Budget & Financing	B Through 2019	C FY 2020	D FY 2021	E FY 2022	F FY 2023	G FY 2024	H FY 2025	I FY 2026	J FY 2027	K FY 2028	L FY 2029	M (C:L) Total FY 2020 - FY 2029
Expenditure Budget	1,953,720	1,953,720	0	0	0	0	0	0	0	0	0	0	0
Financing Plan													
GO Bonds (Stormwater)	1,285,000	1,285,000	0	0	0	0	0	0	0	0	0	0	0
State/Federal Grants	668,720	668,720	0	0	0	0	0	0	0	0	0	0	0
Financing Plan Total	1,953,720	1,953,720	0	0	0	0	0	0	0	0	0	0	0
Additional Operating Impact	21,600	0	0	2,000	2,100	2,200	2,300	2,400	2,500	2,600	2,700	2,800	21,600

CHANGES FROM PRIOR YEAR CIP

No changes from previous CIP.

PROJECT DESCRIPTION & JUSTIFICATION

Urban Stream Restoration is a strategy identified in the City's Chesapeake Bay Total Maximum Daily Load (TMDL) Action Plan to reduce pollution and address the Bay TMDL mandates in the City's Municipal Separate Storm Sewer System (MS4) permit. The project also allows restoration of ecological habitats. Additionally, the project will address an exposed portion of the sanitary sewer located along the existing stream bank by burying the sanitary sewer and moving that portion of the stream away from the sewer. This project will be highlighted in the Phase 2 Chesapeake Bay TMDL Action Plan as a specific strategy to meet the City's compliance goals.

To comply with the plan targets, the City has completed a stream assessment to obtain information on conditions to guide in protecting and restoring local streams. During these assessments, Lucky Run was identified as having unfavorable conditions that make it a prime candidate for a stream restoration project. The Chesapeake Bay TMDL Compliance Analysis and Options report reviewed options and alternatives for treating stormwater and provided corresponding costs. While the Lucky Run Stream Restoration project is a cost-effective strategy to meet the City's pollution reduction requirements, this project also offers an opportunity to enhance the ecological integrity of the stream, make it more of an amenity, and address the exposed sanitary sewer.

The City has also been awarded a $668,720 grant from the state through the Stormwater Local Assistance Fund (SLAF) by leveraging an equivalent amount of funding from the Stream and Channel Maintenance project to fully fund this project. This reduced the City contribution by half of the original estimated amount.

EXTERNAL OR INTERNAL ADOPTED PLAN OR RECOMMENDATION

City of Alexandria Municipal Separate Storm Sewer System (MS4) General Permit, Program Plan, and Year 5 Annual Report; City's Chesapeake Bay TMDL Action Plan; T&ES Strategic Plan; Eco-City Charter; Eco-City Action Plan; Green Infrastructure Program

ADDITIONAL OPERATING IMPACTS

Stream restoration projects create an enhanced stability to the stream and require minimal operational costs when designed and constructed properly. Operating impacts are mostly due to inspection and minimal maintenance at approximately $2,000 annually beginning in FY 2021, with a three percent annual inflation factor included each year thereafter.

MS4-TMDL COMPLIANCE WATER QUALITY IMPRV.

DOCUMENT SUBSECTION:	Stormwater Management	PROJECT LOCATION:	Citywide
MANAGING DEPARTMENT:	Department of Transportation and Environmental Services	REPORTING AREA:	Citywide
		PROJECT CATEGORY:	3
PRIMARY STRATEGIC THEME:	Theme 8: Environmental Sustainability	ESTIMATE USEFUL LIFE:	30+ Years

MS4-TMDL Compliance Water Quality Imprv.

	A (B + M) Total Budget & Financing	B Through 2019	C FY 2020	D FY 2021	E FY 2022	F FY 2023	G FY 2024	H FY 2025	I FY 2026	J FY 2027	K FY 2028	L FY 2029	M (C:L) Total FY 2020 - FY 2029
Expenditure Budget	49,255,000	0	1,255,000	3,000,000	3,500,000	3,500,000	7,000,000	7,000,000	7,000,000	9,000,000	5,000,000	3,000,000	49,255,000
Financing Plan													
GO Bonds (Stormwater)	36,935,000	0	1,155,000	2,900,000	2,750,000	2,750,000	4,250,000	4,190,000	4,190,000	8,250,000	4,250,000	2,250,000	36,935,000
Stormwater Utility	12,320,000	0	100,000	100,000	750,000	750,000	2,750,000	2,810,000	2,810,000	750,000	750,000	750,000	12,320,000
Financing Plan Total	49,255,000	0	1,255,000	3,000,000	3,500,000	3,500,000	7,000,000	7,000,000	7,000,000	9,000,000	5,000,000	3,000,000	49,255,000
Additional Operating Impact	0	0	0	0	0	0	0	0	0	0	0	0	0

CHANGES FROM PRIOR YEAR CIP

Planned FY 2020 funding reduced by $1.75 million and transferred to the new Strawberry Run and Taylor Run Stream Restoration projects.

PROJECT DESCRIPTION & JUSTIFICATION

The Virginia Department of Environmental Quality (DEQ) issued the City's current Municipal Separate Storm Sewer System (MS4) Permit on July 1, 2013 that mandates City-specific stormwater nutrient and sediment reduction targets for the Chesapeake Bay Total Maximum Daily Load (TMDL) enforced through three 5-year MS4 permit cycles. Accordingly, the permit requires the City to implement stormwater treatment best management practices (BMPs) sufficient to achieve 5% of the reduction targets during first 5-year permit (2013-2018), while successive MS4 permits will require implementation of practices to achieve an additional 35% or 40% of total reduction targets during the second 5-year permit (2018-2023) by 2023, and the remaining 60% or 100% of the reductions on or before the end of the third permit cycle (2023-2028), no later than by 2028.

The City continues planning efforts and identifying options to comply with these targets and discusses these through the Water Quality Steering Committee and Water Quality Workgroup, along with other internal stakeholders. Additionally, the City completed the Chesapeake Bay TMDL Compliance Analysis and Options report (August 2014) that considered options and alternatives for treating stormwater to meet the Bay TMDL regulatory mandates, along with the corresponding costs to implement these alternatives, formed the basis of the strategies included in the City's Phase 1 Chesapeake Bay TMDL Action Plan, and form the basis of the strategies in the draft Phase 2 Chesapeake Bay Action Plan that was submitted June 1, 2018, with the final Action Plan due no later than October 31, 2019, one year from the effective date of the 2018 – 2023 MS4 General Permit. This budget is based on funding that can be used to implement a diverse mix of strategies to achieve a large portion of the required reductions in the next ten years. In addition to retrofit of regional facilities, implementation of Green Infrasturture as stormwater quality retrofits of City facilities and right-of-way retrofits, along with urban stream restoration, are some of the strategies that will be implemented to meet the required reductions. As the specific projects to achieve these reductions are identified and developed, this funding is used to support those projects.

The Bay TMDL Action Plan for 5% compliance was approved by DEQ on January 12, 2016. The City's draft Bay TMDL Action Plan for achieving a total 40% compliance was submitted June 2018, with the final submitted for DEQ no later than October 31, 2019, one year from the effective date of the 2018 – 2023 MS4 General Permit.

The budgetary estimates were developed with engineers from the firms conducting the Chesapeake Bay TMDL Compliance Analysis and Options study. Please note that these MS4-TMDL Compliance Water Quality Improvement projects, along with the inclusion of City Facilities BMP projects, Green Infrastructure projects, and stream restorations projects will likely satisfy the second permit cycle (2018 - 2023 permit). For FY 2020 and beyond, estimates are based on staff planning and will be revised as the 2018 – 2023 MS4 permit requirements and other regulatory expectations become clearer through the development of the Phase III Watershed Implementation Plan (WIP III) that is currently under development and the requirements of the next MS4 permit.

EXTERNAL OR INTERNAL ADOPTED PLAN OR RECOMMENDATION

City of Alexandria Municipal Separate Storm Sewer System (MS4) Permit, Program Plan, and Year 5 Annual Report; City's Chesapeake Bay TMDL Action Plan; T&ES Strategic Plan; Eco-City Charter; Eco-City Action Plan

ADDITIONAL OPERATING IMPACTS

No additional operating impacts identified at this time.

NPDES / MS4 PERMIT

DOCUMENT SUBSECTION:	Stormwater Management	PROJECT LOCATION:	Citywide
MANAGING DEPARTMENT:	Department of Transportation and Environmental Services	REPORTING AREA:	Citywide
		PROJECT CATEGORY:	3
PRIMARY STRATEGIC THEME:	Theme 8: Environmental Sustainability	ESTIMATE USEFUL LIFE:	Varies

NPDES / MS4 Permit

	A (B + M) Total Budget & Financing	B Through 2019	C FY 2020	D FY 2021	E FY 2022	F FY 2023	G FY 2024	H FY 2025	I FY 2026	J FY 2027	K FY 2028	L FY 2029	M (C:L) Total FY 2020 - FY 2029
Expenditure Budget	2,465,000	655,000	160,000	165,000	170,000	175,000	180,000	185,000	190,000	195,000	195,000	195,000	1,810,000
Financing Plan													
Cash Capital	250,000	250,000	0	0	0	0	0	0	0	0	0	0	0
Stormwater Utility	2,215,000	405,000	160,000	165,000	170,000	175,000	180,000	185,000	190,000	195,000	195,000	195,000	1,810,000
Financing Plan Total	2,465,000	655,000	160,000	165,000	170,000	175,000	180,000	185,000	190,000	195,000	195,000	195,000	1,810,000
Additional Operating Impact	0	0	0	0	0	0	0	0	0	0	0	0	0

CHANGES FROM PRIOR YEAR CIP

No changes from previous CIP.

PROJECT DESCRIPTION & JUSTIFICATION

This project provides funding for the data collection, inspection and enforcement, public education and outreach, public involvement and citizen participation, GIS mapping, development of water qualtiy action plans, BMP database management, and reporting activities associated with implementation of the programs required by the National Pollution Discharge Elimination System (NPDES) permit regulations administered by the Virginia Department of Environmental Quality (DEQ) through the Virginia Stormwater Management Program (VSMP) General Virginia Pollutant Discharge Elimination System (VPDES) Permit for Discharges of Storm Water from Small Municipal Separate Storm Sewer Systems (MS4) per 9VAC25-890 et. seq.

The MS4 general permit has a duration of 5-year cycles that requires the City to develop, implement and enforce an MS4 Program Plan to reduce discharges of pollutants from the MS4, protect water quality, and satisfy the appropriate requirements of the Clean Water Act.

The City was originally issued General Permit VAR040057 on July 8, 2003, and the most recent permit was issued on November 1, 2018 and is effective through October 31, 2023. Each successive permit contains increased regulatory requirements which necessitate more resources. The current 2018 – 2023 general permit is no exception, with requirements for public education and outreach, staff training, revisions to Total Maximum Daily Load (TMDL) plans, implementation of Stormwater Pollution Prevention Plans (SWPPPs), enhanced inspections, and additional reporting. The permits continue to contain increasingly stringent mandates to address the Chesapeake Bay TMDL.

The City developed and submitted on April 1, 2018 the required MS4 permit registration statement as an application for coverage under the 2018 – 2023 MS4 general permit, which included a Phase 2 Chesapeake Bay Total Maximum Daily Load (TMDL) Action Plan that contained strategies to achieve an additional 35% of reductions in nutrients and sediment by 2023. The 2018-2023 MS4 general permit also requires the City to update the MS4 Program Plan during FY 2019 to include new programmactic compliance activies in the permit, with MS4 annual reports covering compliance activities and other permit reporting requirements carried out for each fiscal year that are due by October 1st. Planned capital projects to meet the Bay TMDL reductions are budgeted as separate, specific projects under the “Stormwater Management” section of the CIP. New guidance for increased requirements for the Phase 2 Bay TMDL Action Plan has not yet been provided by DEQ.

Finally, new requirements under the Virginia Watershed Implementation Plan Phase III (WIP III) that is being developed with the draft scheduled for completion in FY 2019 and finalized in FY 2020 are likely to include increased nutrient and sediment requirements to be enforced through the City’s MS4 permit.

EXTERNAL OR INTERNAL ADOPTED PLAN OR RECOMMENDATION

City of Alexandria Municipal Separate Storm Sewer System (MS4) Permit; MS4 Program Plan; MS4 Annual Report; City's Chesapeake Bay TMDL Action Plan; T&ES Strategic Plan; Eco-City Charter; Eco-City Action Plan

ADDITIONAL OPERATING IMPACTS

No additional operating impacts identified at this time.

PHOSPHORUS EXCHANGE BANK

DOCUMENT SUBSECTION:	Stormwater Management	PROJECT LOCATION:	Citywide
MANAGING DEPARTMENT:	Department of Transportation and Environmental Services	REPORTING AREA:	Citywide
		PROJECT CATEGORY:	3
PRIMARY STRATEGIC THEME:	Theme 8: Environmental Sustainability	ESTIMATE USEFUL LIFE:	30+ Years

Phosphorus Exchange Bank

	A (B + M) Total Budget & Financing	B Through 2019	C FY 2020	D FY 2021	E FY 2022	F FY 2023	G FY 2024	H FY 2025	I FY 2026	J FY 2027	K FY 2028	L FY 2029	M (C:L) Total FY 2020 - FY 2029
Expenditure Budget	0	0	0	0	0	0	0	0	0	0	0	0	0
Financing Plan													
Private Capital Contributions	0	0	0	0	0	0	0	0	0	0	0	0	0
Financing Plan Total	0	0	0	0	0	0	0	0	0	0	0	0	0
Additional Operating Impact	0	0	0	0	0	0	0	0	0	0	0	0	0

CHANGES FROM PRIOR YEAR CIP

This is a new project added to the CIP in FY 2020. The Phosphorus Exchange Bank will be seeded with prior year Environmental Restoration funds in the amount of $100,000.

PROJECT DESCRIPTION & JUSTIFICATION

Virginia Stormwater Management Program (VSMP) regulations, as incorporated into the Article XIII of the City's Environmental Management Ordinance (EMO), require properties that undergo development or redevelopment to reduce the amount of phosphorous in stormwater runoff that leaves the site in the post-construction condition. The amount of phosphorus that must be reduced is based upon several factors such as disturbed area, increases in impervious area, land cover types, etc. Owners of development sites may use applicable "offsite compliance options" to meet these requirements pursuant to 62.1-44.15:35 of the Code of Virginia and the attendant VSMP regulations per 9VAC25-870-69 A. The City can 'exchange' phosphorus reductions between projects occurring on city-owned properties under the current VSMP regulations.

Small scale City funded construction projects and City projects with unfavorable site conditions face difficulties in meeting stormwater management requirements on-site through the installation of stormwater quality structural best management practices (BMPs) due to lack of space and/or cost of construction that make installation infeasible. As such, these projects regularly use offsite compliance options to meet their regulatory phosphorous reduction requirements. Most often this requirement is met by purchasing nutrient credits from the state's Nutrient Credit Exchange for practices implemented outside the City within the Potomac River basin. In effect, these purchases send funds outside of the City and provide no benefit to local water quality.

The Transportation and Environmental Services, Stormwater Management Division (T&ES-SWM) created this policy alternative for City projects that allows offsite compliance options that provide benefits to local water quality and keep funds within the City. The policy was developed with input across city agencies, revised given that input, shared and approved by the Virginia Department of Environmental Quality, and executed via signature by the director of Transportation and Environmental Services.

EXTERNAL OR INTERNAL ADOPTED PLAN OR RECOMMENDATION

City of Alexandria Municipal Separate Storm Sewer System (MS4) Permit, Program Plan and Year 5 Annual Report; City's Chesapeake Bay TMDL Action Plan; T&ES Strategic Plan; Eco-City Charter; Eco-City Action Plan

ADDITIONAL OPERATING IMPACTS

No additional operating impacts identified at this time.

STORM SEWER CAPACITY ASSESSMENT

DOCUMENT SUBSECTION:	Stormwater Management	PROJECT LOCATION:	Citywide
MANAGING DEPARTMENT:	Department of Transportation and Environmental Services	REPORTING AREA:	Citywide
		PROJECT CATEGORY:	1
PRIMARY STRATEGIC THEME:	Theme 8: Environmental Sustainability	ESTIMATE USEFUL LIFE:	11 - 15 Years

Storm Sewer Capacity Assessment

	A (B + M) Total Budget & Financing	B Through 2019	C FY 2020	D FY 2021	E FY 2022	F FY 2023	G FY 2024	H FY 2025	I FY 2026	J FY 2027	K FY 2028	L FY 2029	M (C:L) Total FY 2020 - FY 2029
Expenditure Budget	5,688,500	4,238,500	475,000	475,000	0	0	0	0	0	500,000	0	0	1,450,000
Financing Plan													
Cash Capital	949,492	949,492	0	0	0	0	0	0	0	0	0	0	0
Stormwater Utility	4,739,009	3,289,009	475,000	475,000	0	0	0	0	0	500,000	0	0	1,450,000
Financing Plan Total	5,688,500	4,238,500	475,000	475,000	0	0	0	0	0	500,000	0	0	1,450,000
Additional Operating Impact	0	0	0	0	0	0	0	0	0	0	0	0	0

CHANGES FROM PRIOR YEAR CIP

No changes from previous CIP.

PROJECT DESCRIPTION & JUSTIFICATION

This project provides for a multi-year citywide storm sewer analysis and flow modeling to determine the stormwater system's capacity and to develop recommendations for improvements to the existing storm sewer system.

The project includes flow modeling, field verification of invert elevations and manhole locations, and condition assessments of pipes 24 inches in diameter or greater. This study is budgeted as a response to several large magnitude storms in 2003 and 2006 that caused flooding in low-lying areas of the City.

The analysis and assessment looked at reducing flooding in problem areas by employing a variety of technologies including "Green Infrastructure" such as: rain gardens, infiltration swales, planter boxes, tree canopy and infiltration wells, pervious pavement, gutters, and sidewalks, street/alley retrofits into "green streets," rain barrels and cisterns, green roofs, etc. Recommendations also included improvements to the City storm sewer system. These future projects will be funded through the Storm Sewer System Spot Improvements or Green Infrastructure projects as funding becomes available.

The project collected field data, updated the City's GIS storm sewer layers, built computer models, and performed condition assessments on storm sewer manholes and pipes for Hooff's Run, Holmes Run, Taylor Run, Backlick Run, Cameron Run, Strawberry Run and Four Mile Run watersheds. In addition, identification of problem areas and prioritizing on the basis of the findings has been completed. Final deliverables were received February 2016. Funding planned in FY 2020 and FY 2021 will provide for updated analysis, additional data collection, flow modeling, and updated mapping. Areas identified in the initial study prioritization will receive more rigorous analyses and updated prioritization, to include comparison against receipt of notifications through the City's Call-Click-Connect tool, staff observations, and other means of reporting, to target capacity issues that have manifested reportable issues. The prioritization will include cost estimates for these potential capital flooding projects.

This project provides the resources for a thorough understanding of the City's storm sewer system and will assist in anticipating problems in performance and capacity allowing for proactive solutions in protecting citizens and property from stormwater flooding.

EXTERNAL OR INTERNAL ADOPTED PLAN OR RECOMMENDATION

Eco-City Charter; Strategic Plan, MS4 General Permit

ADDITIONAL OPERATING IMPACTS

No additional operating impacts identified at this time.

STORM SEWER SYSTEM SPOT IMPROVEMENTS

DOCUMENT SUBSECTION:	Stormwater Management	PROJECT LOCATION:	Citywide
MANAGING DEPARTMENT:	Department of Transportation and Environmental Services	REPORTING AREA:	Citywide
		PROJECT CATEGORY:	1
PRIMARY STRATEGIC THEME:	Theme 8: Environmental Sustainability	ESTIMATE USEFUL LIFE:	Varies

Storm Sewer System Spot Improvements

	A (B + M) Total Budget & Financing	B Through 2019	C FY 2020	D FY 2021	E FY 2022	F FY 2023	G FY 2024	H FY 2025	I FY 2026	J FY 2027	K FY 2028	L FY 2029	M (C:L) Total FY 2020 - FY 2029
Expenditure Budget	10,305,221	7,305,221	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000	3,000,000
Financing Plan													
Cash Capital	2,826,648	2,826,648	0	0	0	0	0	0	0	0	0	0	0
GO Bonds (Stormwater)	7,163,646	4,163,646	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000	3,000,000
Private Capital Contributions	9,927	9,927	0	0	0	0	0	0	0	0	0	0	0
Stormwater Utility	305,000	305,000	0	0	0	0	0	0	0	0	0	0	0
Financing Plan Total	10,305,221	7,305,221	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000	3,000,000
Additional Operating Impact	0	0	0	0	0	0	0	0	0	0	0	0	0

CHANGES FROM PRIOR YEAR CIP

No changes from previous CIP.

PROJECT DESCRIPTION & JUSTIFICATION

This project provides funding for essential capital infrastructure improvements on the City's storm sewer system. These projects are identified as reconstruction projects due to deterioration or due to the need for additional capacity to reduce flooding. Completion of these projects will improve the City's storm sewer capital infrastructure while mitigating the impacts of flooding. Regular capital infrastructure improvements can reduce the number of pipe collapses while reducing emergency repair costs caused by deferred maintenance. FY 2020planning efforts include a wider identification and formal prioritization of projects for consideration of funding under this capital program. This more formal effort will include the development of a ranking and prioritization for those identified projects, with implmentation pending identification of funding.

The City identifies flooding and drainage projects through resident complaints, analyses, and field observations. Below is a partial list of those identified projects to mitigate drainage issues in problem areas. The City is currently creating a proactive, methodical approach to prioritizing these types of projects, and will update the below list of projects as others are identified and options considered.

Current and future projects include, but are not limited to:

- DASH Bus Facility Flood Mitigation
- Key Drive Unnamed Tributary channel wall
- Lloyd's Lane
- Loyola Street
- Oakland Terrace, Timber Branch channel Wall
- Saylor Place Storm Sewer Improvements

EXTERNAL OR INTERNAL ADOPTED PLAN OR RECOMMENDATION

Storm Sewer Capacity Analysis final report (February 2016); Northern Virginia Hazard Mitigation Plan

ADDITIONAL OPERATING IMPACTS

No additional operating impacts identified at this time.

STORMWATER BMP MAINTENANCE CFMP

DOCUMENT SUBSECTION:	Stormwater Management	PROJECT LOCATION:	Citywide
MANAGING DEPARTMENT:	Transportation and Environmental Services	REPORTING AREA:	Citywide
		PROJECT CATEGORY:	1
PRIMARY STRATEGIC THEME:	Theme 8: Environmental Sustainability	ESTIMATE USEFUL LIFE:	30+ Years

Stormwater BMP Maintenance CFMP

	A (B + M) Total Budget & Financing	B Through 2019	C FY 2020	D FY 2021	E FY 2022	F FY 2023	G FY 2024	H FY 2025	I FY 2026	J FY 2027	K FY 2028	L FY 2029	M (C:L) Total FY 2020 - FY 2029
Expenditure Budget	3,476,000	0	135,000	140,000	150,000	155,000	1,110,000	1,105,000	160,000	170,000	175,000	176,000	3,476,000
Financing Plan													
Stormwater Utility	3,476,000	0	135,000	140,000	150,000	155,000	1,110,000	1,105,000	160,000	170,000	175,000	176,000	3,476,000
Financing Plan Total	3,476,000	0	135,000	140,000	150,000	155,000	1,110,000	1,105,000	160,000	170,000	175,000	176,000	3,476,000
Additional Operating Impact	0	0	0	0	0	0	0	0	0	0	0	0	0

CHANGES FROM PRIOR YEAR CIP

This is a new project added to the CIP in FY 2020.

PROJECT DESCRIPTION & JUSTIFICATION

The Virginia Department of Environmental Quality (DEQ) issued the City's current Municipal Separate Storm Sewer System (MS4) Permit on November 1, 2018 that mandates City-specific stormwater nutrient and sediment reduction targets for the Chesapeake Bay Total Maximum Daily Load (TMDL) enforced through three 5-year MS4 permit cycles. Accordingly, the previous 2013-2018 permit required the City to implement stormwater treatment best management practices (BMPs) sufficient to achieve 5% of the reduction targets during first 5-year permit (2013-2018), while the current MS4 permit requires implementation of practices to achieve an additional 35% or 40% of total reduction targets during the second 5-year permit (2018-2023) by 2023, and the remaining 60% or 100% of the reductions on or before the end of the third permit cycle (2023-2028), no later than 2028. Identification of strategies to meet these reductions, which includes the retrofit of large regional ponds, urban stream restoration, and installation of green infrastructure, are included in the City's Chesapeake Bay Total Maximum Daily Load (TMDL) Action Plan.

Long-term maintenance of this new infrastructure must be performed to ensure proper functioning to reduce pollution in stormwater runoff and meet the state and federal mandates. This project funds maintenance of Stormwater Best Management Practices (BMPs) implemented throughout the City, as well as maintenance of larger stormwater management capital projects:

- Cameron Station Pond Retrofit
- City Facilities Stormwater BMPs
- Green Infrastructure
- Lake Cook Stormwater Management
- Lucky Run Stream Restoration
- MS4-TMDL Compliance
- Strawberry Run Stream Restoration
- Taylor Run Stream Restoration

EXTERNAL OR INTERNAL ADOPTED PLAN OR RECOMMENDATION

Bay TMDL Action Plan, MS4 General Permit, Strategic Plan, Environmental Action Plan, Water Quality Management Supplement

ADDITIONAL OPERATING IMPACTS

No additional operating impacts identified at this time.

STORMWATER UTILITY IMPLEMENTATION

DOCUMENT SUBSECTION:	Stormwater Management	PROJECT LOCATION:	Citywide
MANAGING DEPARTMENT:	Department of Transportation and Environmental Services	REPORTING AREA:	Citywide
		PROJECT CATEGORY:	3
PRIMARY STRATEGIC THEME:	Theme 8: Environmental Sustainability	ESTIMATE USEFUL LIFE:	N/A

Stormwater Utility Implementation

	A (B + M) Total Budget & Financing	B Through 2019	C FY 2020	D FY 2021	E FY 2022	F FY 2023	G FY 2024	H FY 2025	I FY 2026	J FY 2027	K FY 2028	L FY 2029	M (C:L) Total FY 2020 - FY 2029
Expenditure Budget	1,673,200	1,673,200	0	0	0	0	0	0	0	0	0	0	0
Financing Plan													
Cash Capital	1,518,200	1,518,200	0	0	0	0	0	0	0	0	0	0	0
Stormwater Utility	155,000	155,000	0	0	0	0	0	0	0	0	0	0	0
Financing Plan Total	1,673,200	1,673,200	0	0	0	0	0	0	0	0	0	0	0
Additional Operating Impact	1,523,800	0	0	150,000	154,500	159,100	163,900	168,800	173,900	179,100	184,500	190,000	1,523,800

CHANGES FROM PRIOR YEAR CIP

No changes from previous CIP.

PROJECT DESCRIPTION & JUSTIFICATION

The City Council directed staff in February 2016 to develop the framework of a Stormwater Utility (SWU) to provide a dedicated funding source to more equitably distribute the increasing costs of recent state and federal Chesapeake Bay water pollution reduction mandates that require the implementation of costly infrastructure associated with stormwater management, as enforced through the City's Municipal Separate Storm Sewer System (MS4) general permit. Increasing operating and capital costs associated with the mandates exceed the ½ cent dedication, demanding increasing contributions from the General Fund. Creation of the SWU more equitably apportions the cost obligation and provides a dedicated funding source for the City's Stormwater Management Program by shifting the burden to those properties that contribute more to stormwater runoff, thus alleviating pressure on the General Fund to support these funding responsibilities.

Following extensive public outreach, the City Council adopted the Stormwater Utility framework at its May 4, 2017 special meeting as part of the FY 2018 Budget. The City began implementingthe Stormwater Utility Fee, effective January 1, 2018, with first billing sent May 2018 and second billing in October 2018, with the Real Estate bill, and every May and October thereafter with each Real Estate bill, to fund these mandated stormwater improvements and the stormwater management program in an adequate, sustainable and equitable manner.

The Stormwater Utility Phase 1 Credit Manual for Non-Residential Properties was adopted in October 2017. The Comprehensive Credit Manual, combining Phase 1 and Phase 2 for Residential Properties, was developed and adopted in FY 2019. Funding in FY 2020 will be used for the continued implementation of the the Stormwater Utiltiy, to include consultant work, temporary GIS professional services, database management, additional systems development (database modeling, intergration and user interfaces), ongoing GIS data management, and other identified needs to successfully implement the utility. Additionally, extensive and robust public engagement is also key to implementation of the utility.

EXTERNAL OR INTERNAL ADOPTED PLAN OR RECOMMENDATION

City of Alexandria Municipal Separate Storm Sewer System (MS4) Permit; MS4 Program Plan; MS4 Year 5 Annual Report; City's Chesapeake Bay TMDL Action Plan; T&ES Strategic Plan; Eco-City Charter; Eco-City Action Plan

ADDITIONAL OPERATING IMPACTS

By FY 2021, it is assumed that additional partial FTEs will be needed for applications integration and increased GIS/IT core responsiblities to continue implementation of the utility, that would be funded through revenue from the Stormwater Utility Fee.

STRAWBERRY RUN STREAM RESTORATION

DOCUMENT SUBSECTION:	Stormwater Management	PROJECT LOCATION:	Ft. Williams Parkway
MANAGING DEPARTMENT:	Transportation and Environmental Services	REPORTING AREA:	Seminary Hill
		PROJECT CATEGORY:	3
PRIMARY STRATEGIC THEME:	Theme 8: Environmental Sustainability	ESTIMATE USEFUL LIFE:	21-25 years

Strawberry Run Stream Restoration

	A (B + M) Total Budget & Financing	B Through 2019	C FY 2020	D FY 2021	E FY 2022	F FY 2023	G FY 2024	H FY 2025	I FY 2026	J FY 2027	K FY 2028	L FY 2029	M (C:L) Total FY 2020 - FY 2029
Expenditure Budget	800,000	250,000	550,000	0	0	0	0	0	0	0	0	0	550,000
Financing Plan													
GO Bonds (Stormwater)	675,000	125,000	550,000	0	0	0	0	0	0	0	0	0	550,000
Stormwater Utility	125,000	125,000	0	0	0	0	0	0	0	0	0	0	0
Financing Plan Total	800,000	250,000	550,000	0	0	0	0	0	0	0	0	0	550,000
Additional Operating Impact	18,800	0	0	0	2,000	2,100	2,200	2,300	2,400	2,500	2,600	2,700	18,800

CHANGES FROM PRIOR YEAR CIP

This is a new project added to the CIP in FY 2020.

PROJECT DESCRIPTION & JUSTIFICATION

The Virginia Department of Environmental Quality (DEQ) issued the City's current Municipal Separate Storm Sewer System (MS4) Permit on July 1, 2013 that mandates City-specific stormwater nutrient and sediment reduction targets for the Chesapeake Bay Total Maximum Daily Load (TMDL) enforced through three 5-year MS4 permit cycles. Accordingly, the permit requires the City to implement stormwater treatment best management practices (BMPs) sufficient to achieve 5% of the reduction targets during first 5-year permit (2013-2018), while successive MS4 permits will require implementation of practices to achieve an additional 35% or 40% of total reduction targets during the second 5-year permit (2018-2023) by 2023, and the remaining 60% or 100% of the reductions on or before the end of the third permit cycle (2023-2028), no later than by 2028.

As part of the effort to meet the goals of the Chesapeake Bay TMDL and to further reduce pollutant discharges into the MS4, the City has proposed the Strawberry Run Stream Restoration project to City Council. To mitigate the design and construction costs for the project, the City will seek funding from the Virginia Department of Environmental Quality (DEQ) SLAF to restore a portion of Strawberry Run.

The project involves stream restoration for approximately 900 linear feet of stream north of Duke Street and continuing north to the culvert under Fort Williams Parkway. It is bounded by residential development along Taft Avenue, residential development along Featherstone Place, and Fort Williams Parkway. When the Taft Avenue development was constructed, stream restoration was completed for a 500-foot section of Strawberry Run just to the north of Duke Street. This project will restore the reach above this previously restored section and extend to the culvert under Fort Williams Parkway.

A stream restoration project to stabilize the stream banks and provide overall improvement to the stream's function is a stormwater treatment strategy that protects local water quality and mitigates the transport of pollutants to the Chesapeake Bay. The project will mitigate channel and bank erosion, preventing sediment and phosphorous associated with that erosion from being delivered downstream from an actively incising urban stream.

EXTERNAL OR INTERNAL ADOPTED PLAN OR RECOMMENDATION

MS4 General Permit, Chesapeake Bay TMDL Action Plan, Strategic Plan, Environmental Action Plan, Water Quality Management Supplement

ADDITIONAL OPERATING IMPACTS

Stream restoration projects create an enhanced stability to the stream and require minimal operational costs when designed and constructed properly. Operating impacts are mostly due to inspection and minimal maintenance at approximately $2,000 annually beginning in FY 2022, with a three percent annual inflation factor included each year thereafter.

STREAM & CHANNEL MAINTENANCE

DOCUMENT SUBSECTION:	Stormwater Management	PROJECT LOCATION:	Citywide
MANAGING DEPARTMENT:	Department of Transportation and Environmental Services	REPORTING AREA:	Citywide
		PROJECT CATEGORY:	1
PRIMARY STRATEGIC THEME:	Theme 8: Environmental Sustainability	ESTIMATE USEFUL LIFE:	Varies

Stream & Channel Maintenance

	A (B + M) Total Budget & Financing	B Through 2019	C FY 2020	D FY 2021	E FY 2022	F FY 2023	G FY 2024	H FY 2025	I FY 2026	J FY 2027	K FY 2028	L FY 2029	M (C:L) Total FY 2020 - FY 2029
Expenditure Budget	11,466,734	6,966,734	450,000	450,000	450,000	450,000	450,000	450,000	450,000	450,000	450,000	450,000	4,500,000
Financing Plan													
Cash Capital	3,802,125	3,802,125	0	0	0	0	0	0	0	0	0	0	0
Environmental Restoration Funds	230,000	230,000	0	0	0	0	0	0	0	0	0	0	0
GO Bonds	1,199,609	1,199,609	0	0	0	0	0	0	0	0	0	0	0
GO Bonds (Stormwater)	3,087,993	650,000	287,993	350,000	225,000	225,000	225,000	225,000	225,000	225,000	225,000	225,000	2,437,993
Stormwater Utility	3,147,007	1,085,000	162,007	100,000	225,000	225,000	225,000	225,000	225,000	225,000	225,000	225,000	2,062,007
Financing Plan Total	11,466,734	6,966,734	450,000	450,000	450,000	450,000	450,000	450,000	450,000	450,000	450,000	450,000	4,500,000
Additional Operating Impact	0	0	0	0	0	0	0	0	0	0	0	0	0

CHANGES FROM PRIOR YEAR CIP

No changed from previous CIP for FY 2020 – FY 2029. Funding in the amount of $147,850 in prior year funds was transferred to the Taylor Run Stream Restoration project.

PROJECT DESCRIPTION & JUSTIFICATION

This project provides funding for annual capital infrastructure improvements to various streams and channels throughout the City to preserve their capacity to carry a 100-year floodwater and for repairs to erosion damage, stream corridor degradation, grade control structures, storm sewer discharge points, sediment removal, and stream stabilization/restoration.

The Phase III Stream Restoration and Outfall Rehabilitation Feasibility Study is currently being finalized in FY 2019. The Study considered five stream segments for potential restoration projects and five outfalls for potential rehabilitation. The purpose of the Study was to help the City to develop overall strategies to deal with degraded streams and assist in prioritizing the projects. The Study prioritized two potential stream restoration projects, with the top two potential projects identified along Strawberry Run and Taylor Run.

Project funds will be utilized to mitigate damages caused by heavy storm events, provide water quality benefits, and mitigate flooding. Project costs may be funded directly, or may form the basis of funding for new projects broken out into single projects, such as Lucky Run Stream Restoration. A request for new projects for Strawberry Run Stream Restoration and Taylor Run Stream Restoration has been included in the FY 2020-FY 2029 CIP with a portion of prior year funding leveraged from this project to create the two new proposed projects in the CIP. Outfall projects are still being considered and will likely be funded directly from this project.

The urban nature of the City and the areas of Fairfax County whose stormwater drains into the City puts stress on the vitality of natural streams throughout the City. This has caused erosion, loss of natural habitat, impacted riparian areas, infrastructure damage, and flooding issues in these streams. Designing and implementing restoration for these streams will provide the additional capacity needed to handle the added stormwater runoff from urbanization, allowing for the return of natural habitat and enhancing the health of these important resources in our City. Restoration of these resources can also provide the added benefit of creating nutrient and sediment pollution reductions and help the City address Chesapeake Bay Total Maximum Daily Load (TMDL) mandates.

EXTERNAL OR INTERNAL ADOPTED PLAN OR RECOMMENDATION

Eco-City Charter; Water Quality Management Supplement to City Master Plan; MS4 General Permit and Program Plan; Chesapeake Bay TMDL Action Plan; Strategic Plan

ADDITIONAL OPERATING IMPACTS

No additional operating impacts identified at this time.

TAYLOR RUN STREAM RESTORATION

DOCUMENT SUBSECTION:	Stormwater Management	PROJECT LOCATION:	Chinquapin and Forest Parks
MANAGING DEPARTMENT:	Transportation and Environmental Services	REPORTING AREA:	Taylor Run
		PROJECT CATEGORY:	3
PRIMARY STRATEGIC THEME:	Theme 8: Environmental Sustainability	ESTIMATE USEFUL LIFE:	21-25 Years

Taylor Run Stream Restoration

	A (B + M) Total Budget & Financing	B Through 2019	C FY 2020	D FY 2021	E FY 2022	F FY 2023	G FY 2024	H FY 2025	I FY 2026	J FY 2027	K FY 2028	L FY 2029	M (C:L) Total FY 2020 - FY 2029
Expenditure Budget	2,092,850	397,850	1,695,000	0	0	0	0	0	0	0	0	0	1,695,000
Financing Plan													
Cash Capital	147,850	147,850	0	0	0	0	0	0	0	0	0	0	0
GO Bonds (Stormwater)	1,820,000	125,000	1,695,000	0	0	0	0	0	0	0	0	0	1,695,000
Stormwater Utility	125,000	125,000	0	0	0	0	0	0	0	0	0	0	0
Financing Plan Total	2,092,850	397,850	1,695,000	0	0	0	0	0	0	0	0	0	1,695,000
Additional Operating Impact	18,800	0	0	0	2,000	2,100	2,200	2,300	2,400	2,500	2,600	2,700	18,800

CHANGES FROM PRIOR YEAR CIP

This is a new project added to the CIP in FY 2020.

PROJECT DESCRIPTION & JUSTIFICATION

The Virginia Department of Environmental Quality (DEQ) issued the City's current Municipal Separate Storm Sewer System (MS4) Permit on July 1, 2013 that mandates City-specific stormwater nutrient and sediment reduction targets for the Chesapeake Bay Total Maximum Daily Load (TMDL) enforced through three 5-year MS4 permit cycles. Accordingly, the permit requires the City to implement stormwater treatment best management practices (BMPs) sufficient to achieve 5% of the reduction targets during first 5-year permit (2013-2018), while successive MS4 permits will require implementation of practices to achieve an additional 35% or 40% of total reduction targets during the second 5-year permit (2018-2023) by 2023, and the remaining 60% or 100% of the reductions on or before the end of the third permit cycle (2023-2028), no later than 2028.

As part of the effort to meet the goals of the Chesapeake Bay TMDL and to further reduce pollutant discharges into the MS4, the City has proposed the Taylor Run Stream Restoration project to City Council. To mitigate the design and construction costs for the project, the City will seek funding from the Virginia Department of Environmental Quality (DEQ) SLAF to restore a portion of Taylor Run.

The project along Taylor Run is mainly located in Chinquapin Park, west of King Street in the City. This project will restore the a section of the stream from below the culvert near the Chinquapin Recreation Center to approximately 1900 feet downstream.

A stream restoration project to stabilize the stream banks and provide overall improvement to the stream's function is a stormwater treatment strategy that protects local water quality and mitigates the transport of pollutants to the Chesapeake Bay. The project will mitigate channel and bank erosion, preventing sediment and phosphorous associated with that erosion from being delivered downstream from an actively incising urban stream.

EXTERNAL OR INTERNAL ADOPTED PLAN OR RECOMMENDATION

MS4 General Permit, Chesapeake Bay TMDL Action Plan, Strategic Plan, Environmental Action Plan

ADDITIONAL OPERATING IMPACTS

Stream restoration projects create an enhanced stability to the stream and require minimal operational costs when designed and constructed properly. Operating impacts are mostly due to inspection and minimal maintenance at approximately $2,000 annually beginning in FY 2022, with a three percent annual inflation factor included each year thereafter.